

App. Ser. No. 09/852,717  
Reply to Office Action of March 28, 2006

Docket No. AB-1760 US  
Ref. No. OPP990852US

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the Application:

**Listing of Claims:**

1. (currently amended) A panel for a liquid crystal display, comprising:  
an insulating substrate having a flat surface;  
a transparent electrode formed on the flat surface of the insulating substrate;  
a black matrix formed on the transparent electrode; and,  
a protrusion formed on the black matrix.
2. (previously presented) The panel of claim 1, wherein the protrusion is formed of a photosensitive material.
3. (previously presented) The panel of claim 2, wherein the black matrix and the protrusion are formed by a single photolithography process.
4. (previously presented) The panel of claim 2, wherein the black matrix is formed of chrome.
5. (previously presented) The panel of claim 2, wherein the black matrix is structured as a double layer formed of chrome and chrome oxide.
6. (previously presented) The panel of claim 2, further comprising a color filter formed between the insulating substrate and the transparent electrode.
7. (currently amended) A method for manufacturing a panel for a liquid crystal display, comprising the steps of:  
forming a transparent electrode on a flat surface of a substrate;  
forming a black matrix layer on the transparent electrode;  
depositing a photosensitive material on the black matrix layer to form a photosensitive layer;

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patterning the photosensitive layer to mask the black matrix layer and to form a protrusion; and,

etching the black matrix layer using the patterned photosensitive layer and the protrusion as mask.

8. (original) The method of claim 7, wherein the black matrix layer is formed on the transparent electrode.

9. (original) The method of claim 7, wherein a color filter is formed before forming the transparent electrode.

10. (previously presented) The method of claim 7, wherein the black matrix layer is a double layer of comprising chrome and chrome oxide.

11. (previously presented) A liquid crystal display, comprising:  
a first insulating substrate;  
gate lines formed on said first insulating substrate and transmitting scanning signals;  
data lines insulated from and intersecting said gate lines and transmitting image signals;  
pixel electrodes formed in regions defined by intersections of said data lines and said gate lines;

redundant data lines formed on a the same layer as said pixel electrodes;  
switching elements connected to said gate lines, said data lines and said pixel electrodes, said switching elements selectively transmitting the image signals to said pixel electrodes in response to the scanning signals;

a second insulating substrate facing said first insulating substrate with a predetermined distance therebetween;

a common electrode formed on said second insulating substrate; and  
a protrusion pattern formed on said common electrode in regions corresponding to said redundant data lines, and said protrusion pattern formed of an insulating material.

12. (original) The liquid crystal display of claim 11, wherein said protrusion pattern is an organic black matrix.

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13. (original) The liquid crystal display of claim 11, further comprising a color filter formed between said second insulating substrate and said common electrode.

14. (original) The liquid crystal display of claim 11, wherein said pixel electrodes have an aperture pattern.

15. (original) The liquid crystal display of claim 14, wherein the protrusion pattern and the aperture pattern of the pixel electrodes divide the pixel electrodes into four domains.

16. (original) The liquid crystal display of claim 15, wherein the domains are polygonal having two parallel long sides.

17. (original) The liquid crystal display of claim 16, wherein the domains are classified into first domains with long sides in a first direction and second domains with long sides in a second direction, wherein the first direction and the second direction form an angle of between 85 and 95 degrees.

18. (original) The liquid crystal display of claim 17, wherein the first direction makes an oblique angle with respect to a side of the pixel electrodes.

19. (previously presented) The liquid crystal display of claim 11, further comprising liquid crystal injected between said first insulating substrate and said second substrate, long axes of liquid crystal molecules of the liquid crystal material being vertically aligned to said first insulating substrate and said second insulating substrate in a state where no electric field is generated between said first insulating substrate and said second insulating substrate.

20. (previously presented) The liquid crystal display of claim 11, further comprising twisted-nematic liquid crystal injected between said first insulating substrate and second insulating substrate.

21. (currently amended) A liquid crystal display, comprising:  
a first insulating substrate having a flat surface;  
a transparent electrode formed on [[said]] the flat surface of the first insulating substrate;  
a light-blocking layer formed on said transparent electrode and made of metal; and,

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a protrusion portion made of an organic layer and aligned with the light-blocking layer.

22. (original) The liquid crystal display of claim 21, wherein the organic layer is photo-sensitive.

23. (original) The liquid crystal display of claim 21, wherein a resistivity of the organic layer is  $10^{13} \Omega\text{cm}$ .

24. (original) The liquid crystal display of claim 21, further comprising a second substrate provided opposing said first insulating substrate and having a plurality of pixel electrodes and thin film transistors, wherein said light-blocking layer overlaps areas corresponding to a non-transparent layer of the second substrate, and areas between the pixel electrodes.

25. (previously presented) A liquid crystal display (LCD) device, comprising:  
a first substrate;  
a color filter formed on the first substrate;  
a black matrix formed on the first substrate and surrounding a pixel region; and  
a protrusion formed on the color filter within a pixel region,  
wherein the black matrix and the protrusion are formed of the same material.

26. (previously presented) The LCD device of claim 25, wherein the black matrix and the protrusion are formed of an organic material.

27. (previously presented) The LCD device of claim 26, wherein the black matrix and the protrusion are formed of a photo sensitive material.

28. (previously presented) The LCD device of claim 25, further comprising a common electrode formed on the first substrate.

29. (previously presented) The LCD device of claim 28, wherein the common electrode is formed of a transparent material.

30. (previously presented) The LCD device of claim 28, wherein the common electrode is formed between the color filter and the protrusion.

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31. (previously presented) The LCD device of claim 25, further comprising:  
a second substrate facing the first substrate;  
a pixel electrode formed on the second substrate; and  
an aperture formed on an upper surface of the pixel electrode within a pixel region,  
wherein the protrusion and the aperture divide the pixel region into a plurality of domains.

32. (previously presented) A method for manufacturing a liquid crystal display (LCD) device, the method comprising steps of:  
defining portions of a substrate corresponding to a pixel region and a protrusion region arranged within the pixel region;  
forming a color filter layer on a substrate;  
forming a black matrix layer on the color filter layer; and  
etching the black matrix layer to form a protrusion on the protrusion region.

33. (previously presented) The method of claim 32, wherein the step of etching the black matrix layer comprises a step of etching the black matrix layer to form a black matrix surrounding the pixel region.

34. (previously presented) The method of claim 33, wherein the black matrix and the protrusion are formed by a single photolithography step.

35. (previously presented) The method of claim 32, wherein the black matrix layer is formed of an organic material.

36. (previously presented) The method of claim 35, wherein the black matrix layer is formed of a photo sensitive material.

37. (previously presented) The method of claim 32, further comprising a step of forming an electrode layer on the substrate.

38. (previously presented) The method of claim 37, wherein the electrode layer is formed of a transparent material.

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39. (previously presented) The method of claim 37, wherein the electrode layer is formed between the color filter layer and the black matrix layer.